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XXXVIII.—*On the Calathi of the Canary Islands.*

By T. VERNON WOLLASTON, M.A., F.L.S.

ALTHOUGH there are probably few groups of Geodephagous Coleoptera less attractive than *Calathus*, yet, from the important part which it plays in the insect-population of the Atlantic Islands, I have thought that the following descriptive enumeration of the various members of it as yet detected at the Canaries may not be altogether without interest, at least to those entomologists who are occupied more particularly in the question of geographical distribution. When we consider that the last revised catalogue acknowledges but 20 unequivocal species of this genus for the whole of Europe, it seems scarcely credible that so many as 16 (and all of them apparently endemic) should have been observed, up to the present time, in this small archipelago; and yet, even whilst allowing a wide margin for aberration, which we may reasonably suppose to have been considerable where the twofold influence of altitude and long isolation has been brought to bear upon the several forms, I have not been able, after a careful study of an extensive series of specimens, collected in the different islands and at numerous heights above the sea-level, to reduce them satisfactorily to a smaller number.

The Canarian type of *Calathus* is rather a singular one, being remarkable for its more or less flattened form and elliptic outline. In Teneriffe there is an additional peculiarity, which is more or less traceable in most of the species, and strongly expressed in some of them—in the fact of the alternate interstices of the elytra being branded with a longitudinal row of large punctures; and although the exact number of these rounded impressions is essentially variable, the variations seem nevertheless to take place within limits sufficiently well defined to render them an important feature in drawing out the several diagnoses.

They are nearly all of them sylvan insects, the *C. simplicicollis* of Lanzarote, and the *ascendens* and *rectus* of Teneriffe, being apparently the only exceptions. Indeed the *C. ascendens*, which occurs beneath stones at a very lofty elevation (attaining its maximum at about 8000 feet above the sea), would seem to represent in these islands the (European) *C. fuscus* of Madeira. And I may further add that the Teneriffan *C. ciliatus* may perhaps be regarded as the analogue of the *C. vividus* of the latter group, the Teneriffan *C. depressus* as that of the Madeiran *complanatus*, and the *barbatus* from Grand Canary as that of the Porto-Santan *fimbriatus*.

Genus CALATHUS.

Bonelli, Observat. Ent. i. tab. syn. (1809).

§ I. *Tibiæ in utroque sexu (omnino vel fere) simplices.*

a. *Corpus magnum, prothorace postice plus minus angustiore, punctis elytrorum discalibus obsoletis.*

1. *Calathus sphodroides*, n. sp.

C. nigropiceus, subdepressus; capite prothoraceque nitidiusculis, hoc subquadrato postice distincte angustato, ad latera sat late recurvo necnon ante medium paulo rotundato, angulis anticis subobtusis, postice distincte punctato; elytris minus nitidis, striatis, postice subrotundatis; antennis pedibusque rufo-piceis.

Long. corp. lin. 7-7 $\frac{2}{3}$.

Habitat in sylvaticis editioribus Teneriffæ, rarissimus.

The present species and the following one are remarkable amongst the Canarian *Calathi* for their immense size (the *C. ciliatus*, of the second section, being the only one which equals them in bulk), by their prothoraces being narrower behind than in front (a structure of rare occurrence in this genus), and by the discal punctures of their elytra being obsolete. *Inter se* they may be known by the *C. sphodroides* being darker than its ally, by the different shape of its (more basally punctured) prothorax, and by its elytra being somewhat less flattened, rounder posteriorly, and not so acuminate at their apex. It is extremely rare, and confined to the sylvan regions of Teneriffe, at intermediate and rather lofty elevations, the only specimens which I have seen (seven in number) having been captured by myself, beneath loose rotting bark, at the Agua Garcia and in the woods above Taganana.

2. *Calathus acuminatus*, n. sp.

C. piceus vel rufo-piceus, depressus; capite prothoraceque nitidiusculis, hoc subquadrato postice paulo angustato, ad latera late recurvo necnon in medio paulo rotundato, angulis anticis porrectis

subacutis, postice leviter punctato ; elytris minus nitidis, striatis, apice acuminatis ; antennis pedibusque læte rufo-ferrugineis.

Long. corp. lin. $7\frac{1}{2}$ – $7\frac{2}{3}$.

Habitat Teneriffam sylvaticam, in iisdem locis ac præcedens.

As may be gathered from the above diagnosis, the *C. acuminatus* may be known from the last species by its more piceous or rufescent hue ; by its prothorax being less conspicuously narrowed behind, with the sides more elevated and more *regularly* rounded in the middle (instead of *before* the middle, as in that insect), less punctured towards the base, and with its anterior angles more porrected and acute ; by its elytra being flatter, and more acuminate at their apex ; and by its limbs being of a uniformly paler tint. It occurs in precisely the same spots as the *C. sphodroides*, being peculiar (so far as I have observed hitherto) to the wooded districts of Teneriffe. Although very rare, it is not quite so scarce as its ally. I have taken it in the forest-region of the Agua Mansa, above Ycod el Alto, and at the sides of the Vueltas leading down from the Cumbre to Taganana.

b. *Corpus minoris magnitudinis, prothorace postice (ut in Calathis typicis) plus minus latiore, punctis elytrorum discalibus plus minus distinctis.*

3. *Calathus rufo-castaneus*, n. sp.

C. rufo-castaneus, subdepressus ; capite prothoraceque nitidissimis, hoc transverso-subquadrato postice paulo latiore, ad latera subpellucido late recurvo ; elytris minus nitidis, striatis, interstitiis depressis, tertio punctulis 3–5 minutis notato ; antennis pedibusque testaceis.

Long. corp. lin. $5\frac{1}{2}$ –6.

Habitat in elevatis humidis sylvaticis Teneriffæ, rarissimus.

The pale rufo-castaneous hue of this distinct and rather large *Calathus*, in conjunction with its highly polished head and prothorax (the latter of which is a good deal recurved, and somewhat pellucid, towards the edges), the minute size of the discal punctures of its elytra, and its testaceous limbs, will at once separate it from the other species here described. Only nine examples have hitherto come under my notice, and it may be considered, therefore, as decidedly rare. They were all taken in the wooded region above the Agua Mansa of Teneriffe ; so that the species is probably peculiar to the upper portion of the sylvan districts.

4. *Calathus carinatus*.

C. piceus, depressus ; capite prothoraceque nitidis, hoc angusto, elongato-subquadrato postice vix angustiore, ad latera sat recurvo ; elytris ellipticis, complanatis, linea basali in utroque valde profunde arcuata, valde opacis, striatis, interstitiis valde depressis, tertio

punctis circa 5-9 et quinto 2-4 (interdum etiam septimo 1-2) distinctis notatis; antennis pedibusque piceo-testaceis.

Long. corp. lin. $4\frac{1}{2}$ - $5\frac{1}{2}$.

Calathus carinatus?, Brullé, in Webb et Berth. (Col.) 55 (1838).

Habitat Teneriffam, in iisdem locis ac præcedens, sed sat vulgaris.

A most remarkable species, at once known by its narrow, elongate-quadrate prothorax, and by its extremely depressed, opaque, and elliptical elytra, which have the basal line of each (from either shoulder to the scutellum) very deeply curved, and their discal punctures (of which there are usually from five to nine on the third, from about two to four on the fifth, and *occasionally* one or two on even the seventh interstice) exceedingly distinct. I have but little doubt that it is the *C. carinatus* of M. Brullé; for, although I was not able, whilst in Paris, to obtain a sight of his *Calathi*, yet I think there is just sufficient in the description (if "description" it may indeed be called) to render it probable that this is the insect to which he referred, though his total silence on all the salient peculiarities of the four Canarian species which he wished to indicate (one of which is no *Calathus* at all, but an *Argutor*!) renders his diagnoses utterly worthless.

The *C. carinatus* is rather common throughout the sylvan regions of Teneriffe. I have taken it abundantly at the Agua Garcia, as also in the woods above Taganana and at Las Mercedes, in the last of which localities it was also found by the Barão do Castello de Paiva.

5. *Calathus advena*, n. sp.

C. pallide fusco-piceus, depressus; capite prothoraceque nitidiusculis, hoc angustulo, subtrapeziformi, postice lato, ad latera paulo recurvo; elytris ovatis (pone medium ampliatis), subopacis, linea basali in utroque subrecta, striatis, interstitiis subconvexis, tertio punctis duobus notato; antennis pedibusque longiusculis, graciliusculis, rufo-testaceis.

Long. corp. lin. $3\frac{3}{4}$.

Habitat Canariam Grandem, tempore vernali A.D. 1858 specimen unicum (sc. masculum) inveni.

The present *Calathus* is the only one of which I have not an extensive series to compile my diagnosis from, the single specimen which I have seen being one which I captured in Grand Canary (I believe in the region of El Monte) during the spring of 1858. Fortunately, however, it happens to be a male, so that I can have no hesitation (from its simple unfimbriated tibiæ) as to which of my sections it belongs to. It is remarkable for its basally wide (though *altogether* not very broad) prothorax, for its subopaque ovate elytra (which are a good deal expanded behind the

middle, and have, in the example before me, but two punctures developed on their disk), for its fusco-piceous hue, and for its rather elongate, slender limbs. There is certainly no species here enumerated to which it could possibly be referred.

6. *Calathus abaxoides*.

C. piceus, subellipticus, nitidiusculus; prothorace subtrapeziformi, postice lato, ad latera antice haud, postice vix recurvo, angulis posticis subacutis; elytris postice paulo convexis subattenuatis, striatis, interstitiis subconvexis, tertio punctis 3-5 sat distinctis notato; antennis pedibusque piceo-testaceis.

Long. corp. lin. $3\frac{2}{3}$ -4.

Calathus abaxoides?, Brullé, in Webb et Berth. (Col.) 56 (1838).

Habitat in sylvaticis humidis Teneriffæ, sat frequens.

I refer this insect to M. Brullé's *C. abaxoides* from the mere fact of the latter's specific name, there being no other Canarian *Calathus* which could be compared in outline to an *Abax*; but since he says that the *abaxoides* is much of the same form as his following species, the *C. angularis* (which is an *Argutor*, and no *Calathus* at all), and since he speaks of it as "cinq* lignes de longueur," whilst it is only *four*, I cannot but feel doubtful, in the absence of even a single *distinctive* character in his "diagnosis," whether it be correctly identified. It may be readily known by its small size, elliptical outline, and the almost *equally* shining surface of its prothorax and elytra, the former of which is broad posteriorly and almost unrecurved at the sides (except slightly so towards the basal angles); whilst the latter are gradually somewhat narrowed behind, with their interstices slightly convex, and with their discal punctures (from three to five on the third interstice) pretty evident.

The *C. abaxoides* is rather abundant throughout the sylvan regions of Teneriffe, occurring in exactly the same places as the last species. I have observed it more particularly at the Agua Garcia, Taganana, and Las Mercedes. It has also been communicated by the Barão do Castello de Paiva and Professor Heer of Zurich, who obtained it from M. Hartung.

7. *Calathus ascendens*, n. sp.

C. fusco-piceus, subdepressus, subnitidus; capite prothoraceque vix rufescentioribus hoc transverse subquadrato, postice vix angustiore,

* So far as the sizes of his insects are concerned, I can place no dependence on them at all; and my impression is that he has *transposed* the relative lengths of his *C. depressus* and *abaxoides*. And that this is not mere conjecture, in accordance with the immense series of specimens now before me, is rendered quite certain from the fact that, whilst stating his *C. depressus* to be only four lines long, I find, by actual measurement of the length given for it in *his own* plate, that it is exactly *five*!

ad latera pallidiore et sat recurvo; elytris linea basali in utroque arcuata, striatis, interstitiis subdepressis, tertio punctis circa 3-7 distinctis notato; antennis pedibusque rufo-testaceis.

Long. corp. lin. $4\frac{2}{3}$ - $5\frac{1}{3}$.

Habitat sub lapidibus in montibus Teneriffæ, usque ad 8000' s. m. ascendens.

The present *Calathus* (which I have observed only in Teneriffe) is essentially an inhabitant of the loftiest elevations, attaining its maximum at about 8000 feet above the sea, and but rarely descending into the sylvan districts. It may be known by its only slightly shining surface, fusco-piceous hue, and rather large size; by its prothorax (which is a little rufescent at the edges, and not much recurved) being about equally narrowed before and behind; and by the discal punctures of its elytra being well developed and distinct. I took it in profusion, during May of 1859, from beneath stones, on the Cumbre adjoining the Cañadas, above Ycod el Alto, as also on the opposite Cumbre above the Agua Mansa. In both instances, however, I observed a few stray specimens at a rather lower altitude, namely, *almost* at the Agua Mansa and Ycod el Alto themselves; but as even those spots could not be less than some 5000 feet in elevation, there can be no doubt that the *C. ascendens* must be regarded as an alpine species.

8. *Calathus rectus*, n. sp.

C. subdepressus; capite prothoraceque nitidissimis, rufo-piceis, hoc subquadrato, postice vix latiore, ad latera pallidiore et paulo recurvo; elytris piceis, obscurioribus, linea basali in utroque rectissima, leviter striatis, interstitiis depressis, tertio punctis plerumque 3 sat distinctis notato; antennis pedibusque testaceis.

Long. corp. lin. 4- $4\frac{1}{3}$.

Calathus fulvipes?, Brullé [nec Lat.], in Webb et Berth. (Col.) 56 (1838).

Habitat in locis inferioribus et intermediis Teneriffæ, passim.

In their very shining head and prothorax, and duller (though scarcely opaque) and lightly striated elytra, as well as in their general hue and comparatively smaller size, the present *Calathus* and the following one have much in common. Nevertheless the *C. rectus* is the larger and flatter of the two, and has its limbs considerably longer; its head and prothorax also (the latter of which is a trifle more elongate and wider behind, and has its edges more evidently recurved) are more rufescent; and the basal line of its elytra (extending from either shoulder to the scutellum) is less arcuate, being, in fact, almost perfectly straight. Whilst the following species occurs only (so far as I have observed hitherto) in Lanzarote, the *C. rectus* is scattered sparingly over the lower and intermediate elevations of Teneriffe. I have

taken it near Sta Cruz and Orotava (at the latter of which it was likewise found by Mr. Gray), as also on the mountains above Taganana; and it has been communicated by the Barão do Castello de Paiva from Las Mercedes.

I have but little doubt, from its size and superficial aspect, that it is the insect referred by M. Brullé to the European *C. fulvipes*, with which, however, it has, in reality, nothing (except its generic characters) in common.

9. *Calathus simplicicollis*, n. sp.

C. piceus, angustulus, subconvexus; capite prothoraceque nitidissimis hoc subquadrato, postice vix latiore, ad latera anguste pallidiore et vix recurvo; elytris obscurioribus, linea basali in utroque paulo arcuata, leviter striatis, interstitiis depressis, tertio punctis plerumque 3 sat distinctis notato; antennis pedibusque breviusculis, testaceis.

Long. corp. lin. 3–3 $\frac{3}{4}$.

Habitat Lanzarotam borealem, tempore hiberno et vernali, sat frequens.

As may be gathered from what has already been said, the present *Calathus* (which seems to be peculiar to Lanzarote) differs from the last one in being a little smaller, narrower, and more convex, of a slightly darker hue, and with its limbs considerably shorter. Its prothorax, also, is somewhat less conical, with the sides more narrowly rufescent and less recurved; and the basal line of its elytra (joining either shoulder with the scutellum) is more arcuate. It is about the size and general outline of the common European *C. melanocephalus*, of which it is just possible (though, I think, hardly likely) that it may be but a geographical state. It differs, however, from all the specimens and all the varieties of that insect which I have yet seen (including the *peltatus*, Kolen., the *ochropterus*, Dufts., and the *alpinus*, Dej., for types of which I am indebted to my friend Dr. Schaum) in having its prothorax *totally free* from the slightest trace of the two basal foveæ which are always *more or less* expressed in that insect, as also a trifle wider posteriorly, and *perfectly unmargined* behind the hinder angles, which are themselves a little more sharply defined (or, more strictly, *right angles*); its head, too, is altogether *thicker* and more developed, with the eyes less prominent, with the incrassated edge of the clypeus (immediately behind the insertion of the antennæ) more rounded, and with the forehead more convex; and its colour (on which, however, I lay but little stress) is different, its head being somewhat redder (or less black), whilst its prothorax is not *so red* (or more infuscated). Its elytra also are perhaps a little more shining and less depressed. The only locality in which I have hitherto taken the

C. simplicicollis is the extreme north of Lanzarote, where it is not uncommon in the rocky ground behind the Salinas and about the Risco.

§ II. *Tibiæ posteriores maris intus plus minus dense fimbriatæ.*

10. *Calathus ciliatus*, n. sp.

C. fusco-piceus, depressus; capite prothoraceque subnitidis, hoc inæquali, subquadrato, postice latiore, ad latera paulo pallidiore late et valde recurvo; elytris sub-oblongis, linea basali in utroque paulo arcuata, striatis, interstitio tertio punctis circa 8-10 et quinto circa 4-6 distinctis notatis; antennis pedibusque elongatis, rufo-testaceis.

Mas elytris subopacis, interstitiis subconvexis; tibiis posterioribus intus densissime fimbriatis.

Fœm. elytris opacis, interstitiis valde depressis; tibiis simplicibus.

Long. corp. lin. 7-8.

Habitat in montibus excelsis plus minus sylvaticis Teneriffæ, hinc inde sed rarus.

The large size of the present *Calathus** and the following one will easily separate them from the other species of my second section. *Inter se* they are at first sight a good deal allied; and before examining them closely, I had imagined that they were but phases of one insect. A more accurate inspection, however, of *the sexes of both* has convinced me that they are probably distinct, since they preserve their characters, apparently, without variation. The *C. ciliatus* is somewhat the more bulky of the two, being always broader than its ally, and on the average a little longer. It may, however, be additionally known by its prothorax being more especially wider and less conical; by the basal line of its elytra being much less deeply arcuate, causing the shoulders to be less porrected; by the punctures of its third and fifth interstices being usually less numerous; by its elytra (which are a trifle brighter and with their intervals less flattened in the *male* sex) being more oblong; and by the four hinder tibiæ in the male being fimbriated along a rather greater portion of their inner edge. It appears to occur principally in the upper part of the sylvan regions of Teneriffe; and, indeed, I have not yet observed it below an altitude of about 5000 feet. On the damp ledges and rocks above the Agua Mansa, to within a short distance of the Cumbre, I took it sparingly during May of 1859.

* In the national collection at Paris I observed, a few months ago, specimens of this insect under the name of *C. complanatus*, Dej. That species, however, is confined to Madeira, and is totally distinct from the present one, which has more in common *primâ facie* with the Madeiran *C. vividus*, Fab. In real fact, however, *both* of the Madeiran species belong to a different type from these two Canarian ones,—having the hinder tibiæ of their males simple.

11. *Calathus auctus*, n. sp.

C. fusco-piceus, angustulus, depressus; capite prothoraceque subnitidis, hoc inæquali, angustulo, subconico, ad latera paulo pallidiore late et valde recurvo; elytris subellipticis, linea basali in utroque profunde arcuata (ergo ad humeros valde acutis porrectis), striatis, interstitiis (in utroque sexu) depressis, tertio punctis circa 10-14 et quinto circa 6-9 valde distinctis notatis; antennis pedibusque elongatis, rufo-testaceis.

Mas elytris opacis; tibiis posterioribus intus versus apicem densissime fimbriatis.

Fœm. elytris valde opacis; tibiis simplicibus.

Long. corp. lin. 6-7.

Habitat Teneriffam humidam excelsam, in iisdem locis ac præcedens.

As already implied, the rather smaller size and less widened outline of the present *Calathus* (the prothorax of which is especially narrower and more conical), in conjunction with its more elliptic elytra (which have their basal line more curved, and their shoulders consequently acuter or more porrect) and its more numerous discal punctures, will at once separate it from the last species. It differs also in its males having the elytra somewhat more opaque (with the interstices flatter), and the four hinder tibiæ fimbriated along a rather shorter portion of their inner edge. At the same time, I should add that I am by no means perfectly satisfied that it may not be an extreme state of that insect. The *C. auctus* is found in precisely the same spots as the *ciliatus*, occurring in damp localities at a high elevation on the mountains of Teneriffe. I took it, in company with that species, during May of 1859; and it has been communicated by Professor Heer of Zurich (captured by M. Hartung), as also by the Barão do Castello de Paiva.

12. *Calathus angustulus*, n. sp.

C. pallide fusco-piceus, angustus, subdepressus; capite prothoraceque nitidis, hoc angustulo, subquadrato, postice vix angustiore, ad latera paulo pallidiore anguste recurvo; elytris ellipticis (antice et postice subæqualiter rotundatis), opacis, linea basali in utroque profunde arcuata, striatis, interstitio primo (ad basin) punctis 1-3, tertio circa 12-16, quinto circa 8-12 et septimo circa 8-14 valde distinctis notatis; antennis pedibusque rufo-testaceis.

Mas interstitiis subconvexis; tibiis posterioribus intus dense sed breviter fimbriatis.

Fœm. interstitiis depressis; tibiis simplicibus.

Long. corp. lin. $4\frac{1}{2}$ -5.

Habitat Teneriffam excelsam humidam, sub lapidibus corticeque arborum laxo putrido, rarior.

The comparatively narrow outline and pale reddish-brown hue of the present *Calathus*, in conjunction with the shape of its

prothorax (which is a trifle narrower behind than before) and the exceedingly numerous punctures on the alternate interstices of its *elliptic* elytra, will at once characterize it. It is the only Canarian species on which I have observed punctures on the *first* elytral interval, there being usually two or three at the extreme base. Its smaller size and less-margined, differently shaped prothorax, added to its more-rounded, less-flattened elytra and more numerous impressions, will, apart from other differences, readily separate it from the last species. Indeed, in general contour it has perhaps more in common with the *C. carinatus* than with any other member of the genus here described; but its paler colour, narrower and somewhat less depressed elytra (with their more numerous punctures and less arcuated basal line), in combination with its posteriorly narrower prothorax and the fimbriated hinder tibiæ of its male sex, will immediately distinguish it from that insect. The *C. angustulus* occurs sparingly throughout the sylvan regions of Teneriffe, especially towards their upper limits, where it may be found under damp stones and beneath the loose rotting bark of trees. In such positions I have taken it on the ascent from Yeod el Alto to the Cumbre, at the Agua Mansa, and in the laurel-woods above Point Anaga and Taganana. It has also been communicated by the Barão do Castello de Paiva.

13. *Calathus depressus*.

C. nigro-piceus, latus, subdepressus; capite prothoraceque nitidis, hoc subquadrato, postice lato, ad latera vix pallidiore et paulo recurvo; elytris basi latiusculis, linea basali in utroque leviter arcuata, sat profunde striatis, interstitiis (in utroque sexu) subdepressis, tertio punctis circa 6-10, quinto circa 5-7 et septimo circa 1-3 distinctis notatis; antennis pedibusque piceo-testaceis.

Mas tibiis intermediis versus apicem vix fimbriatis (posticis fere, forsan omnino simplicibus).

Fœm. tibiis simplicibus.

Long. corp. lin. 4-5.

Calathus depressus?, Brullé, in Webb et Berth. (Col.) 55, pl. 2. f. 1 (1838).

Habitat in sylvaticis Teneriffæ, sub lapidibus sat vulgaris.

The dark hue and broad outline of this *Calathus* (the prothorax of which is considerably wider behind than in front, and is but slightly recurved at the edges), added to its rather deeply striated elytra (which are subopaque in both sexes, and have their discal punctures of the number indicated above), will sufficiently characterize it. The hinder tibiæ of the male are almost (if not indeed entirely) simple; and even the intermediate ones are but very shortly and obscurely fimbriated towards their inner apex:

nevertheless the latter are, I think, quite sufficiently so to warrant its admission into my second section. Although M. Brullé's very brief and meagre description applies almost equally to about two-thirds of the Canarian *Calathi*, yet, with the assistance of his figure and of the *size* there given of it (though, as already mentioned, that length does *not* tally with what he states), I believe that this is the insect to which he intended to apply the name of *C. depressus*, and I have consequently quoted it as such.

It is universal within the sylvan districts of Teneriffe, and is perhaps the most common of the Canarian *Calathi*; nevertheless, although widely distributed over the island, I have never met with it in actual profusion anywhere. I have taken it at and above Ycod el Alto, at the Agua Mansa, and at the Agua Garcia, as also at Las Mercedes and in the woods towards Taganana and Point Anaga. I have likewise received it from the Barão do Castello de Paiva, and from Professor Heer of Zurich, who obtained it from M. Hartung.

14. *Calathus appendiculatus*, n. sp.

C. fusco-piceus, depressus; capite nitido; prothorace subæquali, subquadrato, postice latiore, ad latera paulo pallidiore anguste et leviter recurvo, ad basin ipsissimam fere immarginato; elytris linea basali in utroque recta, striatis, interstitio tertio punctis circa 3-5 sat distinctis notato; antennis pedibusque testaceis.

Mas omnino nitidus, interstitiis subconvexis; tibiis posterioribus intus densissime fimbriatis.

Fcem. prothorace elytrisque opacis, interstitiis valde depressis; tibiis simplicibus.

Long. corp. lin. $5\frac{1}{2}$.

Habitat Canariam Grandem: in montibus sylvaticis inter oppida Galdar et Teror d. 21 Ap. A.D. 1858 pauca specimina collegi.

Apart from all other characters, the peculiar sexual differences of this fine *Calathus* (the males of which are entirely bright, whilst the females have their *prothorax* and *elytra* opaque) will at once separate it from all the others as yet detected at the Canaries. In their elytral impressions, the present insect and the two following ones are on the ordinary type, the number being reduced to three or four on the third interstice, from which it would appear that those species which have them more or less increased are, according to the data hitherto accumulated, confined to Teneriffe. The *C. appendiculatus* seems to be peculiar to the sylvan regions of Grand Canary, where, on the 21st of April, 1858, I captured several specimens of it, beneath moist rotting bark, in the remains of the ancient forest of El Dorames, on the mountain road between Galdar and Teror.

15. *Calathus barbatus*, n. sp.

C. fusco-piceus, subdepressus; capite prothoraceque nitidis, hoc subquadrato postice vix latiore, ad latera pallidiore et leviter recurvo; elytris vix subconvexis et vix obscurioribus, linea basali in utroque subrecta, leviter striatis, interstitio tertio punctis 3-4 distinctis notato; antennis pedibusque testaceis.

Mas interstitiis subconvexis; tibiis posterioribus intus apicem versus dense fimbriatis; posticis subcurvatis.

Fœm. interstitiis depressis; tibiis simplicibus.

Long. corp. lin. $3\frac{2}{3}$ - $4\frac{1}{3}$.

Habitat Canariam Grandem, in regionibus El Monte et Tarajana tempore vernali A.D. 1858 deprehensus.

Like the last species, the *C. barbatus* would appear to be peculiar to Grand Canary,—descending, however, into *sub-sylvan* spots of a rather lower elevation than those tenanted by that insect. It may be known from it by its very much smaller size and by its sexes being almost equally shining, its prothorax being in them *both* (as is the case with all the Canarian *Calathi* except the *appendiculatus*) equally polished. In minor characters, its elytra are a trifle more convex than those of the *appendiculatus*, and have their basal line rather more curved; and the four hinder tibiæ of its males are fimbriated along a rather shorter portion of their inner edge. I took it, not uncommonly, in the region of El Monte, as also on the mountains of Tarajana, during the spring of 1858.

16. *Calathus spretus*, n. sp.

C. fusco-piceus, subconvexus; capite prothoraceque nitidis, hoc subquadrato, postice vix latiore, ad latera paulo pallidiore et leviter recurvo; elytris subconvexis, ovatis, paulo (præsertim in sexu fœmineo) obscurioribus, linea basali in utroque recta, leviter striatis, interstitiis (in utroque sexu) subdepressis, tertio punctis 3-4 distinctis notato; antennis pedibusque rufo-testaceis.

Mas tibiis posterioribus (sed præsertim intermediis) intus versus apicem paulo densius ciliatis.

Fœm. tibiis simplicibus.

Long. corp. lin. 4- $4\frac{1}{2}$.

Habitat in ins. Hierro, mense Februario A. D. 1858 deprehensus.

In general aspect the present *Calathus* comes so near to the *C. barbatus*, that, were it not for the essential differences displayed by the tibiæ of the males of the two species, I should not have hesitated to consider them as identical; but since the former has the four hinder tibiæ of its males *almost* simple internally, and the posterior pair straight, whilst the latter has them powerfully fimbriated, with the posterior ones slightly curved, I cannot but regard them as dissimilar, and so lay greater stress on the *other* minute differences which they display *inter se* than I should ordinarily

have done. Independently, therefore, of this primary distinction (which of itself would be sufficient to separate them), I may just add that the *C. spretus* may be known from its ally by (on the average) its slightly larger bulk and rather darker hue; by its prothorax being perhaps a little less rounded at the sides, and its elytra a little *more* so; and by the latter being just perceptibly more convex and opaque, with their basal line somewhat straighter.

Whilst the *C. barbatus* is apparently confined to Grand Canary, the present species has been observed only in Hierro, where several specimens of it were captured by Mr. Gray and myself during our visit to that island in February 1858.

XXXIX.—*On the Microscopic Life of the Island of St. Paul, in the Southern Ocean.* By PROFESSOR EHRENBURG*.

OASES in great deserts, and islands of difficult access in the distant ocean, often fill the naturalist with a longing desire for a knowledge of the forms of life existing on them. It seems as if something of a virgin nature—something primæval, and not yet profaned by man—might possibly be retained there, the knowledge of which might enable us to see more deeply into the original manifestations of life on our planet. On the other hand, the expectation at least will be excited of finding, together and connected in isolated spots, certain natural variations of a simpler type of life, which elsewhere have been altered by innumerable opportunities of intermixture, until the original forms have become unrecognizable. It is with a feeling of devotion, with a beating heart, that the naturalist, whether young or old, approaches such localities as are closed to common intercourse, regarding them in the light of something sacred. Experience and the quietude of advancing years cool many a warm hope; but the idea constantly awakens freshly that on some distant island some treasure of this kind is to be found,—just as New Holland has retained its Marsupial Mammals, and New Zealand and Madagascar their gigantic birds—living in the one case, in the others scarcely dead.

The small Island of St. Paul, situated in the midst of the Southern Ocean, at nearly an equal distance (3000 nautical miles) from the Cape of Good Hope and Adelaide in New Holland, which was first discovered and named by Antonio Van Diemen, in 1633, as the southernmost of the two islands of Amsterdam

* Translated from the 'Monatsbericht der Berliner Akademie der Wissenschaften,' December 1861, p. 1085.